



Confirmation records and new distribution of the red cornet fish *fistularia petimba* lacepède, 1803 (actinopterygii: fistulariidae) in the Syrian Marine Waters (Eastern Mediterranean)

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General Note



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ABSTRACT

Biodiversity studies are important tools in fisheries management, especially when point to new species. These studies usefully help to monitor the native species as well as the exotic ones that appear for the first time in the fishing catch; or those that had established themselves in the area. The Mediterranean has been subjected to introduction of more than 100 new species,

Fistulariidae family is represented in the Mediterranean by two fish species, and both of them were recorded in the Syrian. This paper confirms that *F. petimba* do exist in Lattakia coast, and distributes southward along ~40 km to Banyas coast.

Keywords: *fistularia petimba*, Invasive species, Red Sea, Mediterranean Sea, Establishment.

1. INTRODUCTION

Biodiversity studies are important tools in fisheries management, especially when point to new species (Katsanevakis et al., 2014). These studies usefully help to monitor the native species as well as the exotic ones that appear for the first time in the fishing catch; or those that had established themselves in the area (Oral, 2010; Kalogirou, 2011; Ibrahim et al., 2019a). Additionally, they help in determining the magnitude of the alien species impact on biodiversity and marine ecosystem (Ben Haj et al., 2009; Katsanevakis et al., 2016). Thus providing appropriate solutions to reduce the impact of alien species on the new habitats (Mooney et al., 2001; Geburzi and McCarthy, 2018). The alien species move across different biogeographic regions to the new areas, benefitting from many factors especially the human activities and climate changes that make the new area more able to accommodate them (Vallerga et al., 2003; Alshawy et al., 2019c, e). Accordingly, the Mediterranean has been subjected to introduction of more than 100 new species (Drago et al., 2004; Ibrahim, 2009; Zenetos et al., 2012; Alshawy et al., 2019b). Fistulariidae family is represented in the Mediterranean by two fish species, both of them were recorded in the Syrian coast: *Fistularia commersonii* Rüppell, 1838 which was first recorded since 2002 (Galyia (2003), and *Fistularia petimba* Lacepède, 1803 which was first recorded in 2019 from Lattakia coast (Hussein et al., 2019). This paper confirms that *F. petimba* do exist in Lattakia coast, and distributes southward along ~40 km to Banyas coast.

2. MATERIALS AND METHODS

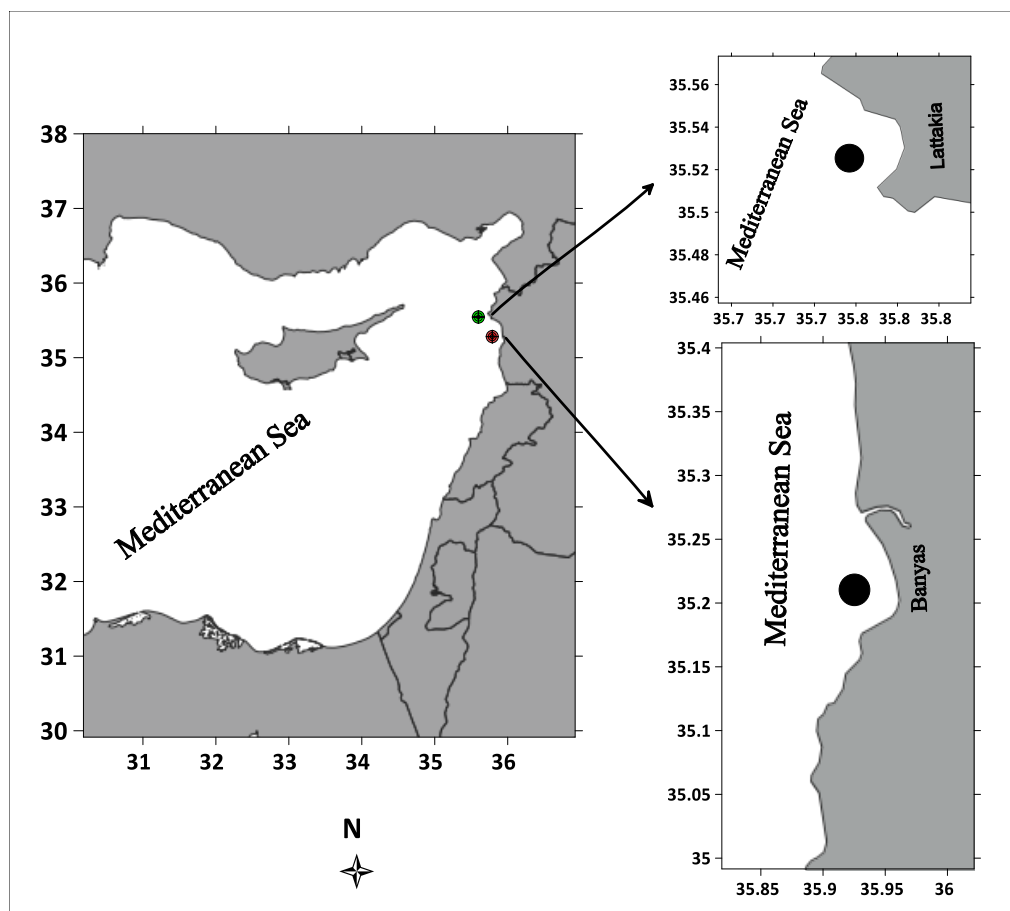


Figure 1 A map showing the collection sites of *F. petimba* from the Syrian marine waters

On 24/9/2019, a field trip was executed in the marine waters facing Banyas city, Syria (N: 35°14'35.11", E: 35°55'12"; Fig.1), and on 29/9/2019 other field trip was executed in the marine waters facing Lattakia city, Syria (N35°31'5.97", E: 35°42'48.57"; Fig.1). Fish samples were collected using fixed gillnet (18mm mesh size, 3m height, 200m length: with duplicates), with assistance of fishing boat (9.5m, 19HP). The fish specimens were identified according to Carpenter and De Angelis (2016). The morphometric measurements (length to the nearest 0.1mm, weight to the nearest g), and meristic counts were recorded. They were then photographed, preserved in 7% formaldehyde, and placed at the Biological Laboratory of the High Institute of Marine Research (Tishreen University - Lattakia, Syria) as reference samples (unnumbered yet).

3. RESULTS

Two specimens of the red cornet fish *Fistularia petimba* Lacepède, 1803 (Fig2) were caught at ~ 45 m water depth off Lattakia coast, and one specimen was caught at ~30 m water depth off Banyas coast. They have long and lightly compressed body, long tubular snout and small mouth. The dorsal fin has soft rays and located approximately at the end of the body, and the caudal fin is clearly forked and has one elongated filament (Fig 2). The dorsal side of the body has a row of bony plates (Fig 2) stretching along to the end. The posterior part of the body has a series of backward-pointing spines on each side (Fig 2). The body is orange-brown and the abdominal side is pearly white. The margins of dorsal, anal and caudal fins are bright orange. The meristic formula was: D,15;A,15;P,15;V,6; C,7. These features of *F. petimba* are in full agreement with Carpenter and De Angelis (2016) and Ünlüoğlu et al. (2018). The morphometric measurements are shown in Table (1).



Figure 2 *F. petimba* specimen, caught on 24, 29/9/2019 from the Syrian coast

Table 1 Morphometric measurements (mm or g, N=3) of *F.petimba* from the Syria marine waters.

Features	Min	Max	Mean	S.E.
Total length (with tail filament)	675	745	719	22
Standard length	480	510	499	9
Body depth	13	14	13.6	0.3
Head length	183	187	185	1
Eye diameter	13	13	13	
Snout length	137	144	142	2.3
Dorsal fin length	20	21	20.6	0.3
Pectoral fin length	20	20	20	
Pelvic fin length	3	3	3	
Caudal fin length	25	28	20.6	0.8
Anal fin length	20	21	20.6	0.3

Pre-dorsal length	400	430	416.6	8.8
Pre-pectoral length	182	190	187.3	2.6
Pre-pelvic length	240	270	260	10
Pre-anal length	400	430	416.6	2.6
Total weight	72	94	82	6

4. DISCUSSION

The red cornet fish *F. petimba* has been recorded in most of the eastern Mediterranean coasts as a Lessepsian species (Stern et al., 2017, Çiftçi et al., 2019, Hussein et al., 2019). This species is similar, in terms of feeding behavior and environmental requirements, to *F. commersonii* (Fischer and Bianchi, 1984, Myers, 1999) which spread in the Mediterranean and became an invasive species. This may indicate the ability of *F. petimba* to follow the same trend and establish itself in the Syrian marine waters, occupying the space and exploiting food resources. This confirmation record in Lattakia coast, besides the local fishermen several similar confirmations, and the new distribution along to Banyas coast support the hypothesis of *F. petimba* possible establishment in the Syrian coast. These confirmation records give an evidence of changes in Mediterranean sea environment (Ibrahim, 2008; Ibrahim et al., 2019b) and highlight the Mediterranean's ability to accommodate the tropical species (Ibrahim et al., 2010; Hallom et al., 2014; Alshawy et al., 2019a, b, d). This could lead to disappearance of some native economic species; because of the exotic species competition for food and space (Ibrahim et al., 2002; Ibrahim, 2009). The long term adaptation to the prevailing environmental conditions in this area may cause a significant disturbance to biodiversity, mainly to those fish species that feed on shrimp and small fish (Froese and Pauly, 2019). Besides the difficulty in catching such sagittal-body specie due to its ability to escape from fishing nets, it could affect the local fishermen as a result of feeding on native economic fish. Stocks sustainable management of this species requires regional and international cooperation (Hussein et al., 2011), to regulate any constant introduction into the Mediterranean Sea and mitigate their environmental impact on native fish populations in order to conserve the Mediterranean environment (Hussein et al., 2011b; a, Ibrahim et al., 2020).

5. CONCLUSION

The red cornet fish *F. petimba* is a lessepsian species, had been recorded in the Syrian marine waters. It starts to establish itself in the area, benefitting from the environmental deteriorations in the Mediterranean Sea.

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Authors' contributions

All authors have equal participation in this work.

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REFERENCE

- Alshawy Firas, Ibrahim, Amir, Hussein, Chirine & Lahlah, Murhaf. First record of arrow bulleye, *Priacanthus sagittarius* Starnes, 1988 from the Syrian marine waters (Eastern Mediterranean). *Fish Taxa*, 2019a:2:21-24.
- Alshawy Firas, Ibrahim, Amir, Hussein, Chirine & Lahlah, Murhaf. First record of the flat needlefish *Ablennes hians* (Valenciennes, 1846) from Syrian marine waters (eastern Mediterranean). *Marine Biodiversity Records*, 2019b:15:
- Alshawy Firas, Ibrahim, Amir, Hussein, Chirine & Lahlah, Murhaf. First record of the oceanic puffer *Lagocephalus* *lagocephalus* (Linnaeus, 1758) from the Syrian marine waters (eastern Mediterranean). *Marine Biodiversity Records*, 2019c:11:
- Alshawy Firas, Ibrahim, Amir, Hussein, Chirine & Lahlah, Murhaf. First record of the spotfin cardinal fish *Jaydia queketti* (Gilchrist, 1903) (Teleostei: Apogonidae) from the Syrian marine waters (Eastern Mediterranean). *Iranian Journal of Ichthyology*, 2019d:2:138-142.
- Alshawy Firas, Ibrahim, Amir, Hussein, Chirine & Lahlah, Murhaf. New Distribution of the Serpent Eel *Ophisurus*

- serpens* (Linnaeus, 1758) in Eastern Mediterranean: First Record from the Syrian Marine Waters. SSRG International Journal of Agriculture & Environmental Science, 2019e:3:50-52.
6. Ben Haj S., Cebrian, D., Limam, A., et al. 2009. SPA (2009) Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean, Arab Countries. In: Secondary Ben Haj S., Cebrian, D., Limam, A., et al. (eds.) RAC, UNEP-MAP.
 7. Carpenter Kent E & De Angelis, Nicoletta The living marine resources of the eastern central Atlantic volume 3 bony fishes part 1 (elopiformes to scorpaeniformes), FAO Species Identification Guide for Fishery Purposes, Rome, 2016.1511-2350.
 8. Çiftçi Nuray, Ayas, Deniz & Doğançün, Mustafa New locality record for *Fistularia petimba* Lacepède, 1803 from the North-Eastern Mediterranean Sea (Mersin Bay). Mediterranean Fisheries and Aquaculture Research, 2019:2:42-48.
 9. Drago Aldo, Aarup, T, A Abdelbaki, et al. MEDGOOS-Building a strong regional partnership for operational oceanography in the Mediterranean. Rapports et procès verbaux des réunions-Commission internationale pour l'exploration scientifique de la mer Méditerranée, 2004:158.
 10. Fischer W & Bianchi, Gabriella FAO species identification sheets for fishery purposes: Western Indian Ocean (Fishing Area 51). v. 1: Introductory material. Bony fishes, families: Acanthuridae to Clupeidae.-v. 2: Bony fishes, families: Congiopodidae to Lophotidae.-v. 3: families: Lutjanidae to Scaridae.-v. 4:... families: Scatophagidae to Trichiuridae.-v. 5: Bony fishes, families: Triglidae to Zeidae. Chimaeras. Sharks. Lobsters. Shrimps and prawns. Sea turtles. v. 6: Alphabetical index of scientific names and vernacular names, 1984.
 11. Froese Rainer & Pauly, D. 2019 www.fishbase.in. 15, Dec 2019
 12. Galyia Mohammad.A New Record of Migrant Fish (*Fistularia Commersonii*, Ruppell, 1835) To Mediterranean Syrian Coast. Tishreen University Journal for Studies and Scientific Research- Basic Science, 2003:13:135-143.
 13. Geburzi Jonas C. & McCarthy, Morgan L. How Do They Do It? – Understanding the Success of Marine Invasive Species. 2018 Cham. Springer International Publishing, 109-124.
 14. Hallom N., Ibrahim, A. & Galiya, M.First record of the hen-like blenny *Aidablennius sphynx* (Blenniidae) from Syrian marine waters (eastern Mediterranean). Marine Biodiversity Records, 2014:73:2.
 15. Hussein C, Verdoit-Jarraya, M, Pastor, J, et al. Assessing the impact of artisanal and recreational fishing and protection on a white seabream (*Diplodus sargus sargus*) population in the north-western Mediterranean Sea using a simulation model. Part 1: Parameterization and simulations. Fisheries Research, 2011a:1:163-173.
 16. Hussein C, Verdoit-Jarraya, M, Pastor, J, et al. Assessing the impact of artisanal and recreational fishing and protection on a white seabream (*Diplodus sargus sargus*) population in the north-western Mediterranean Sea, using a simulation model. Part 2: Sensitivity analysis and management measures. Fisheries Research, 2011b:1:174-183.
 17. Hussein Chirine, Ibrahim, Amir & Alshawy, Firas.First record of Red cornetfish, *Fistularia petimba* Lacepède, 1803 (Actinopterygii: Fistulariidae) from the Syrian coast.International Journal of Aquatic Biology, 2019:3:175-179.
 18. Hussein M, Courp, T, Ibrahim, A & Benkhelil, J.Seasonal variability of hydrographical properties of the Syrian marine water Journal of Marine Systems, 2011:1:30-44.
 19. Ibrahim A, Karroum, M & Lahlah, M Marine fish biodiversity of Syria: Nine new records. J. Env and Res. Sust, 2002:68-93.
 20. Ibrahim A, Lahlah, M, Kassab, My, Ghanem, W & Ogaily, S. *Signatus javus*, a new record from the Syrian waters, with reference to growth and feeding of two Lessepsian fish. Rapport de la Commission internationale de la Mer Méditerranée, 2010:544.
 21. Ibrahim Amir. National Overview on Vulnerability and Impacts of Climate Change on Marine and Coastal Biodiversity in Syria. UNEP/MAP-RAC/SPA,2009:
 22. Ibrahim Amir. Vulnerability Assessment and Possible Adaptation Measures of the Syrian Coastal Areas to Climate Changes"; the National Communication Report to UNFCCC", UNDP. UNDP, 2008:
 23. Ibrahim Amir, Alshawy, Firas, Hussein, Chirine & Lahlah, Murhaf. Confirmation record of the spot fin cardinal fish *Jaydia queketti* (Gilchrist, 1903) (Teleostei: Apogonidae) in the Syrian marine waters. SSRG International Journal of Agriculture & Environmental Science, 2019a:4:48-50.
 24. Ibrahim Amir, Hussein, Chirine & Alshawy, Firas. New Distribution of *Pteragogus trispilus* Randall, 2013 (Actinopterygii: Labridae) in the Syrian Marine Waters (Eastern Mediterranean).SSRG International Journal of Agriculture & Environmental Science, 2019b:5:24-26.
 25. Ibrahim Amir, Alshawy, Firas & Hussein, Chirine New distribution of the smith's cardinal fish *Jaydia smithi* Kotthaus, 1970 (pisces: apogonidae) in the Syrian Marine Waters (Eastern Mediterranean). Species, 2020:67:43-47.
 26. Kalogirou Stefan Alien fish species in the eastern Mediterranean Sea: Invasion biology in coastal ecosystems, Department of Marine Ecology; Institutionen för marin ekologi, 2011.
 27. Katsanevakis Stelios, Tempera, Fernando & Teixeira, Heliana.Mapping the impact of alien species on marine

- ecosystems: the Mediterranean Sea case study. *Diversity Distributions*, 2016;6:694-707.
28. Katsanevakis Stelios, Wallentinus, Inger, Zenetos, Argyro, et al. Impacts of invasive alien marine species on ecosystem services and biodiversity: a pan-European review. *Aquatic Invasions*, 2014;4:391-423.
29. Mooney H.A., Neville, L.E., Schei, P. & Waage, J.K. *Global strategy on invasive alien species*, IUCN Gland, Gland, Switzerland, and Cambridge, UK, 2001.50.
30. Myers Robert F *Micronesian reef fishes: a comprehensive guide to the coral reef fishes of Micronesia*, 3rd revised and expanded edition, 1999.
31. Oral Muammer. Alien fish species in the Mediterranean-Black Sea Basin. *Journal of the Black Sea/Mediterranean Environment*, 2010:1:
32. Stern Nir, Paz, Guy, Yudkovsky, Yana, Lubinevsky, Hadas & Rinkevich, Baruch. The arrival of a second 'Lessepsian sprinter'? A first record of the red cornetfish *Fistularia petimba* in the Eastern Mediterranean. *Mediterranean Marine Science*, 2017;3:524-528.
33. Ünüoğlu A, Akalın, S, Dal, İ, Tıraşın, Em & Aydın, Cm First record of red cornetfish *Fistularia petimba* (Syngnathiformes: Fistulariidae) from Antalya and Iskenderun Bays along Turkish Coasts of the Mediterranean Sea. *Journal of applied ichthyology*, 2018;4:977-980.
34. Vallerga Silvana, Drago, Aldo, Aarup, Thorkild, et al. MAMA— Towards a new paradigm for ocean monitoring in the Mediterranean. *Elsevier Oceanography Series*, 2003:46-56.
35. Zenetos A, Ballesteros, Enric & Verlaque, M. Alien species in the Mediterranean Sea by 2012. A contribution to the application of European Union's Marine Strategy Framework Directive (MSFD). Part 2. Introduction trends and pathways. *Mediterranean Marine Science*, 2012;2:328-352.